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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/467,812 | 12/20/1999 | YUTAKA YOKOYAMA | 13273 | 2853 |

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EXAMINER

SENFU, BEHROOZ M

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 09/30/2003

18

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/467,812

Applicant(s)

YOKOYAMA, YUTAKA

Examiner

Behrooz Senfi

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Applicant's arguments paper no. 16, filed Jun. 20, 2003 have been considered but are moot in view of the new ground(s) of rejection.

Applicant amendment (Paper no. 16) filed Jun 20, 2003, amends claims 1, 7, 9, 11, 17 and 19, and cancelled claims 21.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katata et al. (US 5,631,644) in view of Katta et al. (US 6,173,012).

Regarding claims 1 and 11, Katata '644 discloses apparatus for variable bit rate Video coding (i.e. fig. 1) on the basis of target average bit rate (i.e. fig. 1, units 10 and 11, col. 1, lines 46+, col. 3, lines 10+), and a predetermined quantization step size (i.e. fig. 1, unit 12), and setting a reference quantization step size for each first image unit corresponding to target average bit rate (i.e. fig.1, unit 11), quantization step size adjusting means (i.e. col. 6, lines 20+).

Katata '644 teaches quantization step size setting, but fails to explicitly teach quantization step size setting for calculating average complexity of whole coded data from the quantization step size provided to the video coding.

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However, the above claimed limitations are well known in the prior art as evidenced by Katta '012, in particular (i.e. figs. 3 – 4 and 6b, col. 5, lines 45+ and col. 9, lines 12+) teaches the same, which can continuously control the picture quality (i.e. col. 10, lines 32 – 36).

Taking the combined teaching of Katata '644 and Katta '012 as a whole calculates the complexity of whole coded image with respect to quantization control and target bit rate with respect to virtual buffer rate (figs. 5 and 13) to continuously control the picture quality.

Regarding claims 2 – 3 and 12 - 13, combination of Katata '644 and Katta '012 teaches the claimed limitation “GOP” (i.e. col. 1, lines 47 – 50 of Katata, and fig. 2 of Katta).

Regarding claims 4 and 14, combination of Katata '644 and Katta '012 teaches quantization step size setting means for setting the reference quantization step size for each first image unit computes an image unit complexity defined by the product of the average quantization step size over the preceding coded image and generated bit count, and also computes the reference quantization step size for each first image unit from the ratio between the first image unit complexity and the average bit rate (i.e. col. 11, lines 35+ of Katata).

Regarding claims 5 and 15, combination of Katata '644 and Katta '012 teaches quantization step size adjusting means for adjusting the quantization step size (i.e. col. 6, lines 20+ of Katata).

Regarding claims 6 and 16, combination of Katata '644 and Katta '012 teaches virtual buffer sized to the maximum excess from which codes are withdrawn at the average bit rate (i.e. col. 3, lines 45+ of Katata).

Regarding claims 7 – 8 and 17 - 18, combination of Katata '644 and Katta '012 teaches adjusting/controlling the quantization step based on the generated bit rate and average bit rate with respect to buffer occupancy (fig. 1, col. 1, lines 45+, col. 2, lines 46 – col. 3, lines 5 and col. 4, lines 1+ of Katata) which meets the limitation as claimed, and summation of generated bit count and average quantization step size (i.e. fig. 1, unit 14 of Katata).

Regarding claims 9 and 19, combination of Katata '644 and Katta '012 teaches quantization step size setting means and determines the quantization step size of the first image unit from the first image unit complexity for the first image unit over the preceding coded image (i.e. cols. 11 and 12, lines 66+ of katata).

Regarding claims 10 and 20, combination of Katata '644 and Katta '012 teaches quantization step size adjusting means for adjusting the quantization step size for each second image unit preliminarily sets a threshold for quantization step size (i.e. abstract of Katata), and when the excess or shortage of the average bit rate is not excessive, the reference quantization step size set for each first image unit is compared with the threshold and providing the quantization step without any adjustment when the reference quantization step size is not exceeding the threshold quantization step size, and adjust (i.e. col. 6, lines 1+ and lines 44+ and col. 7, lines 34+ of Katata).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(703)305-0132**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Chris Kelley** can be reached on **(703)305-4856**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

B. S. B. S.

9/19/2003

VU LE
PRIMARY EXAMINER